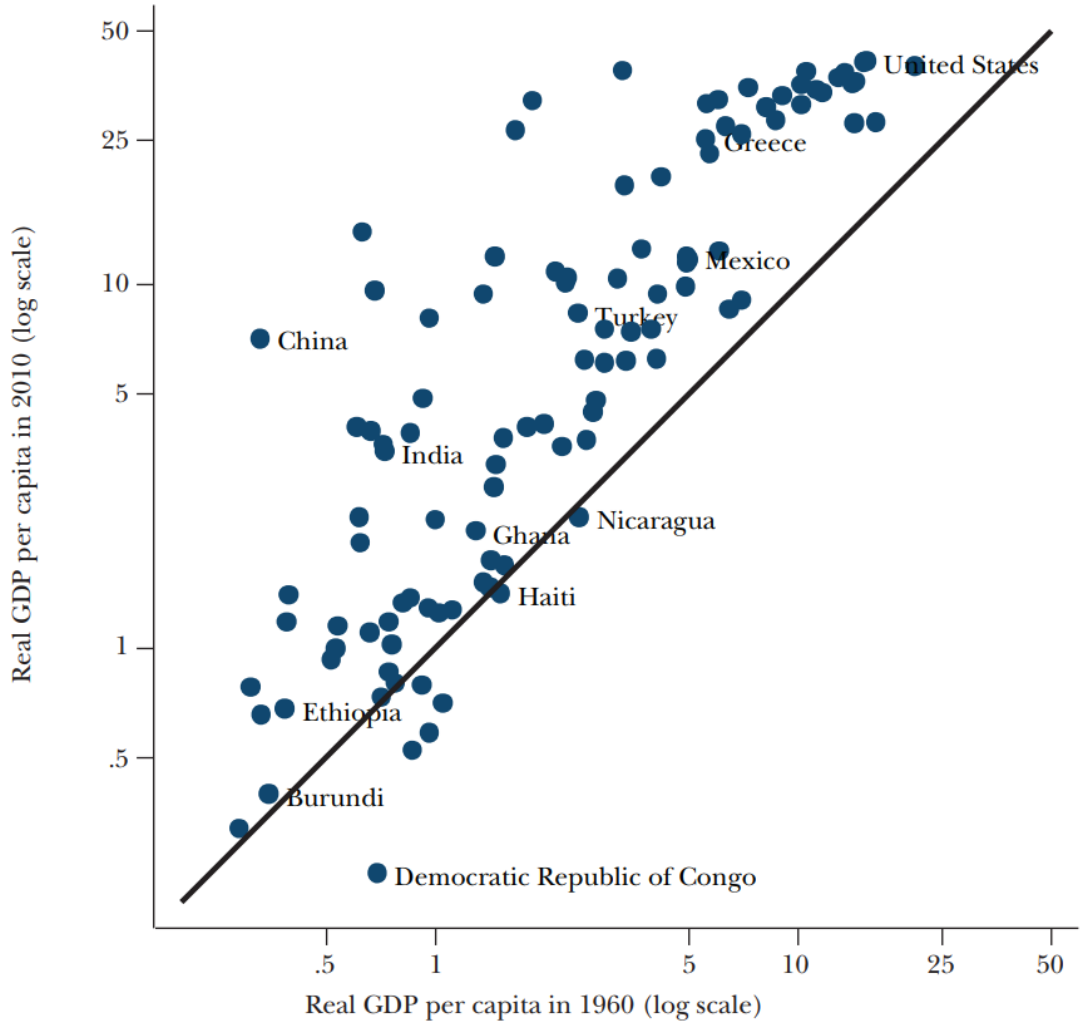
Homework 6: ECO220Y

Required Exercises: Chapter 7: N/A

Required Problems:

(1) Most importantly, do Exercises Q1 – Q7 on pages 14 – 18 of "Logarithms in Regression Analysis with Asiaphoria."

(2) Consider this figure from the journal article: Kraay and McKenzie (2014) "Do Poverty Traps Exist? Assessing the Evidence." *Journal of Economic Perspectives*, 28(3): 127-48 http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.28.3.127.



Source: Penn World Tables, Version 7.1.
Note: Real GDP per capita is in thousands of 2005 US dollars adjusted for differences in purchasing power.

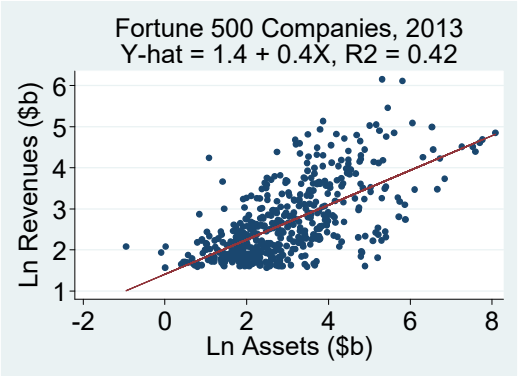
(a) Are the raw data underlying this graph time series, panel, or cross-sectional? Why?

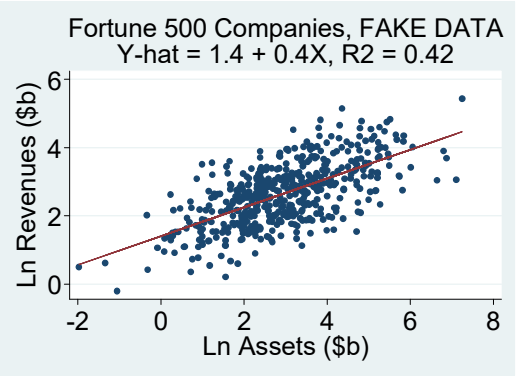
(b) Is the line in the graph the OLS line? How do you know?

(c) Why have the authors taken the logarithm of both the y and x variables? What is the meaning of the scale of the axes? Why are 5 and 10 depicted as the same distance apart as 25 and 50?

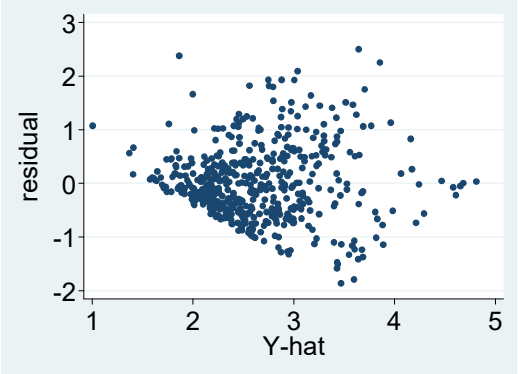
(d) The title of this figure is "Absolute Income Stagnation is Rare." Explain why that is a good title.

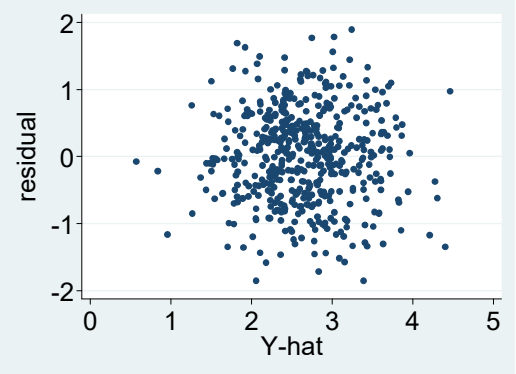
(3) Recall the Fortune 500 companies example from Lecture 6. Here are two graphs from that lecture:





What do these two additional graphs show? (Each lines up with the corresponding graph above it.)





(4) Each year the U.S. Department of Energy releases a fuel economy guide to inform consumers about the fuel economy and greenhouse gas emissions associated with vehicles (cars, vans, etc.) released that year. Further, on the website (www.fueleconomy.gov), they release detailed data for each make and model of vehicle each year. Consider the most recent data on 1,250 makes and models in 2015 (e.g. Ford Focus with automatic transmission, Honda Civic with manual transmission). These data include: the fuel economy (FE) in city driving in miles per gallon (MPG), the FE in highway driving in MPG, and a green house gas (GHG) emissions rating on a scale from 1 to 10 where 1 is the worst and 10 is the best. Consider these OLS regression results, and make sure to notice the natural log transformation. Fully interpret all four numbers (-12.59, 6.02, 0.94, and 1,250).

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ghg_rating-hat = -12.59 + 6.02*ln(city_fe); R-squared = 0.94; n = 1,250
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